ABSTRACT

An object of the present invention is to provide a method for the selection of gene participating in the desired brewing character in such a manner that a database compiling the data of the whole genome sequence of industrial yeast, particularly of a brewing yeast used for alcoholic beverages such as beer is prepared; gene participating in a brewing character that the brewing yeast specifically possesses is selected from the database; and functional analysis of the gene is carried out by disruption or overexpression, and to provide a DNA array (in which oligonucleotide(s) selected) based on the database compiling the data of the whole genome sequences of an industrial yeast or, particularly, of a brewing yeast (is/are adhered on a solid plate). Another object is to provide a method for breeding of yeast achieving the brewing character which the gene participates in, and also a method for the production of an alcohol or an alcoholic beverage in which productivity and quality are improved using the yeast. Still another object is to provide a gene which is specific to the brewing yeast and a peptide encoded by the gene.

Means for achieving the above objects is a screening method for genes participating in increase in productivity and/or improvement in flavor in the production of an alcohol or an alcoholic beverage, characterized in that, (A) the whole genome sequence of industrial yeast is analyzed, (B) the genome sequence is compared with the whole genome sequence of S. cerevisiae, (C) gene of the industrial yeast encoding an amino acid sequence having 70 to 97% identity to an amino acid sequence

encoded by the gene of S. cerevisiae is selected and (D) functional analysis of the gene is carried out, whereby the character which is given to the yeast by the gene is identified.